REMARKS

Claims 12-32 were previously pending in the application. This Amendment amends claim 31, and adds new claims 33-36. Claims 12-30 and 32 remain unchanged. Claims 12 and 21 are independent.

The Claimed Invention

In conventional refrigeration devices, a storage compartment is cooled by blowing cooled and dried air into the storage compartment with the aid of a fan at the evaporator and extracting relatively warm moist air from the storage compartment into an evaporator chamber. The storage compartment is not only cooled but also de-humidified and the moisture is deposited on the evaporator. However, under some ambient conditions, stored foodstuffs may be dried out by the intensive de-humidification.

An exemplary embodiment of the claimed invention, as recited by, for example, independent claim 12, is directed to a no-frost refrigeration device comprising a control circuit which makes an average circulation power of said fan variable during an activation phase of said evaporator **based on at least one air conditioning parameter.**

An exemplary embodiment of the claimed invention, as recited by, for example, independent claim 21, is directed to a method for operating a refrigeration device including a control circuit which makes an average circulation power of said fan variable during an activation phase of said evaporator, comprising the steps of a) estimating a moisture value in said storage compartment; b) **selecting a circulating power for said fan as a function of said estimated moisture value**; and c) operating said fan at said selected circulating power.

In this manner, the present invention provides a no-frost refrigeration device and an operating method for such a device which allows flexible adaptation to the climatic conditions in the environment of the refrigerator, thereby controlling de-humidification and reducing drying out of stored foodstuffs by the de-humidification.

The Rejections under 35 U.S.C. § 102

In the Office Action, claims 12, 13, 17, 18, and 20 are rejected under 35 U.S.C. § 102(b) as being anticipated by the Whipple, III reference (U.S. 5,711,159).

Applicants respectfully traverse this rejection.

Applicants respectfully submit that the Whipple, III reference does not disclose the features of the claimed invention including a control circuit which makes an average circulation power of said fan variable during an activation phase of said evaporator based on at least one air conditioning parameter, as recited by independent claim 12. As explained above, these features are important for providing a no-frost refrigeration device and an operating method for such a device which allows flexible adaptation to the climatic conditions in the environment of the refrigerator, thereby controlling de-humidification and reducing drying out of stored foodstuffs by the de-humidification.

The Whipple, III reference very clearly does not disclose these features. Indeed, the Whipple, III reference very clearly fails to disclose at least a control circuit which makes an average circulation power of said fan variable during an activation phase of said evaporator based on at least one air conditioning parameter, as recited by independent claim 12.

As the Office Action points out, the Whipple, III reference mentions that the ambient condition sensor 175 provides an input signal corresponding to ambient conditions, such as temperature and humidity, to the controller 165. However, Applicants respectfully submit that the Whipple, III reference does not disclose, either explicitly or implicitly, a control circuit which makes an average circulation power of said fan variable during an activation phase of said evaporator based on at least one air conditioning parameter, as recited by independent claim 12. Indeed, the Whipple, III reference is completely silent with respect to whether the control circuit makes an average circulation power of said fan variable during an activation phase of said evaporator based on at least one air conditioning parameter, as claimed.

Applicants respectfully note that, for purposes of establishing a rejection under 35 U.S.C. § 102, a claim is anticipated *only* if each and every element as set forth in the

claim is found, either expressly or inherently described, in a single prior art reference. [...] The identical invention must be shown in as complete detail as is contained in the ... claim." M.P.E.P. § 2131; emphasis added.

In this case, the identical invention clearly is not disclosed, either expressly or inherently, in the Whipple, III reference. Applicants respectfully submit that the Office Action makes a leap from a mere mention of the ambient condition sensor 175 providing an input signal corresponding to ambient conditions, such as temperature and humidity, to the controller 165, to the assertion that the Whipple, III reference shows making an average circulation power of said fan variable during an activation phase of said evaporator based on at least one air conditioning parameter.

Contrary to the assertions in the Office Action, the Whipple, III reference very clearly does not disclose, either expressly or inherently, a control circuit which makes an average circulation power of said fan variable during an activation phase of said evaporator based on at least one air conditioning parameter, as recited by independent claim 12.

Applicants respectfully request withdrawal of this rejection.

The Rejections under 35 U.S.C. § 103

In the Office Action, claims 14-16 and 19 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the Whipple, III reference in view of the Shima et al. reference (U.S. 5,931,011). Claims 21-23 and 26-32 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the Whipple, III reference in view of the Kelly et al. reference (U.S. 6,508,408). Claims 24 and 25 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the Whipple, III reference, the Kelly et al. reference, and further in view of the Shima et al. reference.

Applicants respectfully traverse these rejections.

The Rejection over the Whipple, III reference and the Shima et al. reference

Claims 14-16 and 19 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the Whipple, III reference in view of the Shima et al. reference (U.S. 5,931,011). Applicants respectfully traverse this rejection.

Applicants respectfully submit that none of the applied references discloses or suggests the features of the claimed invention including a control circuit which makes an average circulation power of said fan variable during an activation phase of said evaporator based on at least one air conditioning parameter, as recited by independent claim 12, from which claims 14-16 and 19 depend. As explained above, these features are important for providing a no-frost refrigeration device and an operating method for such a device which allows flexible adaptation to the climatic conditions in the environment of the refrigerator, thereby controlling de-humidification and reducing drying out of stored foodstuffs by the de-humidification.

The Whipple, III reference very clearly does not teach or suggest these features. The Shima et al. reference does not remedy the deficiencies of the Whipple, III reference. Indeed, the Office Action does not rely on the Shima et al. reference for these features of claim 12.

Moreover, none of the applied references discloses or suggests at least the features of claims 14-16 and 19.

Contrary to the assertions in the Office Action, the Shima et al. reference is silent with respect to whether the evaporator 13 is in an activation phase when the cabinet fan 18 is intermittently operated.

As clearly shown in Figure 3, neither the compressor 14 nor the condenser 15 is in an activation phase when the cabinet fan 18 is intermittently operated. Instead, both the compressor 14 and the condenser 15 are deactivated while the cabinet fan 18 is intermittently operated. As shown in Figure 2, the compressor 14 and the condenser 15 are part of the loop that includes the evaporator 13. Since the driving circuit 22 is in communication only with the compressor 14, it appears that the evaporator 13 also would be deactivated when the cabinet fan 18 is intermittently operated, as shown in Figure 3.

Hence, the Shima et al. reference does not disclose said control circuit controlling the operation of said evaporator and said fan set up to intermittently operate said fan *during said activated phase of said evaporator*, as recited in claim 14.

Moreover, the Office Action makes a conclusory statement that such would have been obvious "in order to achieve a device capable of regulating a duty cycle based on an air conditioning parameter, and therefore provide a refrigerator that operates more efficiently and therefore more economically." See, e.g., Office Action at Page 4.

Applicants respectfully submit that such a conclusory statement is insufficient to provide a prima facie case for obviousness because the Office Action fails to provide an adequate rationale for combining the prior art as required by KSR International v. Teleflex Inc. 82 U.S.P.Q. 2d 1385 (2007).

"[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rationale underpinning to support the legal conclusion of obviousness." (In re Kahn, 441 F.3d 977, 988 (CA Fed. 2006) cited with approval in KSR).

The Shima et al. reference does not recognize the aforementioned problems with the conventional devices and would suffer from the very same problems of the conventional art described in the present application.

In stark contrast to the teachings of the Whipple, III reference in view of the Shima et al. reference, independent claim 12 recites a control circuit which makes an average circulation power of said fan variable during an activation phase of said evaporator based on at least one air conditioning parameter.

Applicants respectfully request withdrawal of this rejection.

The Rejection over the Whipple, III reference in view of the Kelly et al. reference

Claims 21-23 and 26-32 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the Whipple, III reference in view of the Kelly et al. reference.

Applicants respectfully submit that one of ordinary skill in the art would not have modified the Whipple, III reference in view of the Kelly et al. reference as alleged by the Office Action. Indeed, the Examiner may not rely upon the Kelly et al. reference under 35 U.S.C. § 103 because the Kelly et al. reference is non-analogous art.

To qualify as analogous art, a reference must either be (1) within the field of Applicants endeavor, or if not, (2) the subject matter logically would have commended itself to an inventor's attention in considering his or her invention as a whole. See M.P.E.P. § 2141.01(a)(I) citing *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1397 (2007).

In the present instance, the Kelly et al. reference clearly is not within the field of Applicants' endeavor. The field of Applicants' endeavor is the field of home appliances and, more particularly, no-frost refrigeration devices.

In stark contrast, the Kelly et al. reference is within the completely different and unrelated field of windglass fog prevention methods for a vehicle climate control system. The field of endeavor of windglass fog prevention methods for a vehicle climate control system clearly is different from the field of endeavor of no-frost refrigerators. Indeed, the Office Action appears to acknowledge this distinction between these different fields of endeavor. See, e.g., Office Action at page 6, lines 18-19.

For at least the foregoing reasons, the Kelly et al. reference clearly is not within the field of Applicants' endeavor.

As set forth above, a reference that is not within the field of Applicants endeavor may qualify as analogous art if the subject matter logically would have commended itself to an inventor's attention in considering his or her invention as a whole. See M.P.E.P. § 2141.01(a)(I) citing *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1397 (2007).

In the present instance, the subject matter of the Kelly et al. reference logically would *not* have commended itself to an inventor's attention in considering his or her invention as a whole.

Properly considered as a whole, the present invention is directed to a no-frost refrigerator and method of controlling a no-frost refrigerator that controls de-humidification in the no-frost refrigeration device and reduces drying out of stored foodstuffs by the de-humidification.

In stark contrast, the Kelly et al. reference very clearly is concerned with the completely unrelated problem of preventing fogging of the windglass of a vehicle.

The Kelly et al reference discloses a climate control system 10 for a vehicle that, inter alia, **increases** the blower motor speed of the blower motor 43 when the humidity in the vehicle **increases** in order to increase the flow of air to the defrost outlet 68 and onto the windglass 98 of the vehicle. Particularly, the Kelly et al reference discloses that **increasing** the blower motor speed control signal offset (BL_OFFSET) **increases** the commanded speed of the blower motor 43. The control system 10 also may **increase** the percentage of *outside air* admitted into the air mixture in the plenum potion 62 for supplying to the defrost outlet 68, panel outlet 70, and heater outlet 72, and/or turn on the rear or side window defoggers 120. See, e.g., the Kelly et al reference at col. 2, line 46 to col. 3, line 4; and col. 4, lines 18-24, 52-56, and 65-67.

When properly considered as a whole, the subject matter of increasing the blower motor speed to defog the windglass of a vehicle logically would *not* have commended itself to an inventor's attention in considering, as a whole, ways to control de-humidification in a no-frost refrigeration device and reduce drying out of stored foodstuffs by the de-humidification. Moreover, the vehicle climate control system for reducing or preventing fogging of the windglass of the vehicle of the Kelly et al. reference does not address any need or problem known in the field of no-frost refrigerators, and indeed, clearly would not have commended itself to the attention of the ordinarily skilled artisan looking to solve problems with controlling de-humidification in a no-frost refrigeration device and reducing drying out of stored foodstuffs by the de-humidification. Indeed, the Kelly et al. reference operates in a completely different manner from the present invention, and hence, teaches away from the claimed invention.

As shown in Figures 2 and 3 of the present invention, if the moisture value (e.g., humidity) **increases** (for example, when the door of the refrigeration device is opened), then the present invention **decreases** the circulation power of the fan to reduce the heat flow between the chamber and the storage compartment, thereby intensifying the cooling of the evaporator, which causes more intensive drying of the air flowing past the evaporator. On the other hand, if the moisture value (e.g., humidity) **decreases**, then the present invention **increases** the circulation power of the fan to increase the heat flow between the chamber and the storage compartment, thereby reducing the cooling of the evaporator, which in turn reduces the drying of the air flowing past the evaporator. In this manner, the present invention controls de-humidification in a no-frost refrigeration device and reduces drying out of stored foodstuffs by the de-humidification. See, e.g., page 2, lines 1-12; page 3, lines 1-9; and page 6, lines 1-9.

In stark contrast, the Kelly et al. reference is concerned with preventing fogging of the windglass of the vehicle. The Kelly et al reference **increases** the blower motor speed when the humidity in the vehicle **increases** in order to increase the flow of air to the defrost outlet and/or **increases** the percentage of outside air admitted into the air mixture in the plenum potion 62 for supplying to the defrost outlet 68, panel outlet 70, and heater outlet 72.

Clearly, if the teachings of the Kelly et al reference were applied to a no-frost refrigerator, the increase in the speed of the blower motor 43 would reduce the cooling of the evaporator, which in turn would reduce the drying of the air flowing past the evaporator. Hence, the Kelly et al reference would not provide de-humidification when applied to a refrigeration device, as opposed to a windglass fog prevention system, and clearly would not have commended itself to the attention of the ordinarily skilled artisan looking to solve problems with controlling de-humidification in a no-frost refrigeration device and reducing drying out of stored foodstuffs by the de-humidification.

Moreover, if the teachings of the Kelly et al reference were applied to a no-frost refrigerator, the increase in outside air provided by the blower motor 43 would only serve to increase the moisture value of the air in the storage compartment. Hence, the Kelly et

al. reference, when properly considered as a whole, clearly would not have commended itself to the attention of the ordinarily skilled artisan looking to solve problems with controlling de-humidification in a no-frost refrigeration device and reducing drying out of stored foodstuffs by the de-humidification.

For at least these reasons, the subject matter of the Kelly et al. reference logically would *not* have commended itself to an inventor's attention in considering his or her invention as a whole, and therefore, the Kelly et al. reference does not qualify as analogous art.

Furthermore, even assuming *arguendo*, that the Kelly et al. reference would qualify as analogous art, Applicants respectfully submit that one of ordinary skill in the art would not have had an apparent reason to combine the disclosure of the Kelly et al. reference with disclosure of the Whipple, III reference to arrive at the claimed invention as a whole.

For example, as explained above, the Kelly et al. reference is concerned with preventing fogging of the windglass of the vehicle while avoiding unnecessarily abrupt or large deviations from the climate control setting otherwise in affect to minimize the disturbance perceived by the vehicle occupants. See, e.g., col. 5, lines 62-67. The Kelly et al reference is not capable of solving the problems solved by the present invention, and indeed, when considered as a whole, operates in a completely different manner than the present invention. Neither the Whipple, III reference nor the Kelly et al reference have anything to do with reducing drying out of stored foodstuffs by the de-humidification, and clearly would not have commended themselves to an inventor's attention in trying to find ways to solve these problems.

Moreover, the resulting combination of the Whipple, III reference and the Kelly et al reference would not disclose or suggest all of the features of the claimed invention.

For example, none of the applied references teaches or suggests the features of the claimed invention as recited, for example, by claim 22, which recites selecting said circulating power to be lower, the higher said estimated moisture value.

As explained above, as shown in Figures 2 and 3, in the present invention, if the moisture value (e.g., humidity) **increases** (for example, when the door of the refrigeration device is opened), then the present invention **decreases** the circulation power of the fan to reduce the heat flow between the chamber and the storage compartment, thereby intensifying the cooling of the evaporator, which causes more intensive drying of the air flowing past the evaporator. See, e.g., page 2, lines 1-12; page 3, lines 1-9; and page 6, lines 1-9.

In stark contrast, the Kelly et al. reference is concerned with preventing fogging of the windglass of the vehicle. The Kelly et al reference **increases** the blower motor speed when the humidity in the vehicle **increases** in order to increase the flow of air to the defrost outlet and/or **increases** the percentage of outside air admitted into the air mixture in the plenum potion 62 for supplying to the defrost outlet 68, panel outlet 70, and heater outlet 72.

For at least the foregoing reasons, neither the Whipple, III reference nor the Kelly et al. reference, either individually or in combination, teaches or suggests the subject matter defined by claims 21-23 and 26-32.

Applicants respectfully request withdrawal of this rejection.

The Rejection over the Whipple, III reference, the Kelly et al. reference, and the Shima et al. reference

Claims 24 and 25 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the Whipple, III reference, the Kelly et al. reference, and further in view of the Shima et al. reference. Applicants respectfully traverse this rejection.

Neither the Whipple, III reference nor the Kelly et al. reference, either individually or in combination, teaches or suggests the features of independent claim 21, from which claims 24 and 25 depend. The Shima reference also does not make up for the deficiencies of these references, and indeed, is not relied upon for these features of claim 21.

Moreover, none of the applied references discloses or suggests the subject matter defined by claims 24 and 25.

For example, as explained above, the Shima et al. reference is silent with respect to whether the evaporator 13 is in an activation phase when the cabinet fan 18 is intermittently operated. As clearly shown in Figure 3, neither the compressor 14 nor the condenser 15 is in an activation phase when the cabinet fan 18 is intermittently operated. Instead, both the compressor 14 and the condenser 15 are deactivated while the cabinet fan 18 is intermittently operated. As shown in Figure 2, the compressor 14 and the condenser 15 are part of the loop that includes the evaporator 13. Since the driving circuit 22 is in communication only with the compressor 14, it appears that the evaporator 13 also would be deactivated when the cabinet fan 18 is intermittently operated, as shown in Figure 3.

Hence, contrary to the assertions in the Office Action, the Shima et al. reference does not disclose or suggest controlling the operation of said evaporator and intermittently operating said fan during said activated phase of said evaporator, as recited in claim 24.

Applicants respectfully request withdrawal of this rejection.

New Claims

New claims 33-36 are added. No new matter is added. See, e.g., page 2, lines 1-12; page 3, lines 1-9; and page 6, lines 1-9.

None of the applied references discloses or suggests the subject matter defined by claims 33-36.

For example, none of the applied references discloses or suggests selecting said circulating power to be higher, the lower said estimated moisture value, as recited in claim 33, or wherein the control circuit decreases the circulation power of the fan during the activation phase of the evaporator when the estimated moisture value is greater than a moisture value constant, and increases the circulation power of the fan during the

activation phase of the evaporator when the estimated moisture value is less than the moisture value constant, as recited in claim 34.

Similarly, none of the applied references discloses or suggests wherein the control circuit decreases the average circulation power of the fan during the activation phase of the evaporator when the moisture value is greater than a moisture value constant, as recited in claim 35, or wherein the control circuit selectively decreases the average circulation power of the fan during the activation phase of the evaporator when the moisture value is greater than a moisture value constant, and increases the average circulation power of the fan during the activation phase of the evaporator when the moisture value is less than the moisture value constant, as recited in claim 36.

As shown in Figures 2 and 3 of the present invention, if the moisture value (e.g., humidity) **increases** (for example, when the door of the refrigeration device is opened), then the present invention **decreases** the circulation power of the fan to reduce the heat flow between the chamber and the storage compartment, thereby intensifying the cooling of the evaporator, which causes more intensive drying of the air flowing past the evaporator. On the other hand, if the moisture value (e.g., humidity) **decreases**, then the present invention **increases** the circulation power of the fan to increase the heat flow between the chamber and the storage compartment, thereby reducing the cooling of the evaporator, which in turn reduces the drying of the air flowing past the evaporator. See, e.g., page 2, lines 1-12; page 3, lines 1-9; and page 6, lines 1-9.

In stark contrast, the Kelly et al. reference is concerned with preventing fogging of the windglass of the vehicle. The Kelly et al reference **increases** the blower motor speed when the humidity in the vehicle **increases** in order to increase the flow of air to the defrost outlet and/or **increases** the percentage of outside air admitted into the air mixture in the plenum potion 62 for supplying to the defrost outlet 68, panel outlet 70, and heater outlet 72.

For at least these reasons, Applicants respectfully request allowance of new claims 33-36.

CONCLUSION

In view of the above, entry of the present Amendment and allowance of Claims 12-36 are respectfully requested. If the Examiner has any questions regarding this amendment, the Examiner is requested to contact the undersigned. If an extension of time for this paper is required, petition for extension is herewith made.

Respectfully submitted,

/Andre Pallapies/

Andre Pallapies
Registration No. 62,246
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BSH Home Appliances Corporation
100 Bosch Blvd.
New Bern, NC 28562
Phone: 252-672-7927
Fax: 714-845-2807
andre.pallapies@bshg.com